1: Freeman E-5 (1949-1951)1955 OC6 Iban OC6

and he had disappeared without reason, no trace ever being found of his body. 425
Because of a fear that malevolent spirits (*antu*) had been responsible, the people of Rumah Ikau shunned the area; they were not willing to give up the Sungai Nyunggau entirely, but they did agree to let certain related *bilek* families of Rumah Nyala make temporary use of the land at its headwaters. This land was partly covered by virgin forest, and partly by secondary jungle of considerable age, called *pengerang*. No one knew to whom this secondary jungle had once belonged, but it was said that it dated from the time of the first Iban occupation of the Sut, at the beginning of the present century. Again, on their first arrival in the Baleh, the Iban found areas of secondary jungle which had resulted from the farming activities of the Lugats. These Lugats (who are closely allied to the Kajang peoples of the upper Rejang), had fled to the Anap, harried by Iban head-hunters. In such cases as these, secondary jungle is treated as though it were primary, and rights of ownership accrue to the first new fellers in the customary way. As we shall presently describe, the haphazard inroads of previous generations into the virgin forests of the Baleh, has resulted in very complex systems of usage.

54. Finally, it should be borne in mind that what has been said about land 311
tenure applies specifically to the Baleh region. From the historical introduction it will have been observed that the Baleh is essentially a pioneer region. In the past, all attempts to confine the Iban have failed; there has always been uninhabited virgin forest on a wide perimeter, and during the past hundred years, at least, the Iban have constantly and relentlessly encroached upon it. An indication of the scope of their advance may be derived from an examination of the life story of Pengulu Temenggong Koh. Koh was born, in about 1870, at Pulau Ensulit, in the headwaters of the Kanyau, a tributary of the Kapuas River, in what was then Dutch territory; here his family had retreated during the first Katibas expedition, of 1869. His boyhood was spent in the Katibas and in the Rejang, below and above Kapit. He is now (1950), farming virgin jungle on the western bank of the Baleh, some five miles above the mouth of the Putai (the former Government boundary), and distant about two hundred miles, by river, from the place of his birth. Over the whole of this distance there stretches a 'trail'—discontinuous and often erratic—of secondary jungle that has resulted from the yearly farm-clearings of Koh's *bilek* family.

55. The fact that virgin forest was in virtually unrestricted supply, resulted in little value being attached to secondary jungle. A *bilek* family was always ready to abandon the *damun* land it had acquired, to settle in a region of untouched *kampong*. Before the advancing Iban there lay thousands of square miles of deserted, or extremely sparsely populated, rain-forest. On their head-hunting forays Iban bands had penetrated into the remote headwaters of the Rejang, Kayan, Mahakam and Kapuas rivers, and the vast extent of the territories which extended before their tribe was well enough known.[1] In these circumstances, it

[1]In passing, it may be noted that Iban head-hunting raids on the Kayans, Kenyahs, Punans, Ukits, and other tribes of the Rejang basin, had more than mere ritual significance. The Iban, as we have seen, were invaders, and in a very real sense they were fighting for the possession of new territory. At first, there was resistance, and in the 1850's the Kayans were strong enough to launch severe attacks on Iban migrants in the Katibas. The great expedition of 1863 was a devastating retribution on all the tribes of the upper Rejang, and in subsequent years the Iban followed up this onslaught by countless fierce raids. Significantly, the Iban not only took heads. Whenever possible, they burnt down enemy long-houses, and cast all the iron implements they could find into a near-by river. In this way they hoped to discourage farming, and compel their enemies to withdraw. To a remarkable extent they

1: Freeman E-5 (1949-1951)1955 OC6 Iban OC6

311 is understandable—if not excusable—that the Iban were prodigal of the primeval jungle. In Iban eyes, there was sufficient forest land to provide for untold future generations, and their whole policy was to exploit the stored-up fertility of virgin land by extracting from it two or three successive crops, and then to move on to fresh fields. It is also understandable that under these conditions, there was no very complex, or stringent system of land tenure. Land tenure becomes [423] a serious issue only when land is a relatively scarce, and consequently, a valued commodity. This situation has already been reached in many parts of Sarawak, and—as far as the Iban are concerned—notably in certain parts of the Second Division, where the virgin forest has for some years been completely exhausted. If Government succeeds in containing the Baleh Iban within their present limits, and if their population continues to increase, the whole land tenure situation will change. It therefore becomes important that Government should anticipate possible difficulties, by surveying and registering long-house territories, for only when this has been done will it be feasible to adjust the size of communities in relation to their available territories, and so attain a rational and stable cycle of cultivation.

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were successful. The Lugats were driven into the Anap, the Ukit into the Mahakam, and the Lesum, Badang and others, into the Apo Kayan or Baram. By the beginning of the present century, the Iban were unchallenged masters of the whole of the middle Rejang, and had not Government forcibly restrained them, they would have extended their influence even more widely.

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hours (depending on the state of the water) from the main long-house. At Rumah Tungku, in the Sungai Tiau (a long-house of 50 *bilek* families), the farms were dispersed over an area of about 15 square miles, and the majority of them could only be reached by canoe. Similar conditions prevailed at most of the other long-houses which I visited, and had any of them been selected as a site for research, it would have been extremely difficult to have obtained a comprehensive view of the farming activities of the whole community. Rumah Nyala presented me with the great advantage of being able to move about at will, and the most distant of the farms could be reached in a tramp of about three hours. Another important consideration was that at Rumah Nyala a wide variety of different land was being cultivated, so that I was able to observe the felling and farming of primary, and many different types of secondary jungle, and to make valuable comparisons.

66. Iban agriculture, as may have become apparent, is an extremely complex subject. In particular, it is complicated by elaborate ritual acts and concepts which are all elements of cardinal importance. Throughout the agricultural cycle ritual and labour are inextricably interwoven. Every stage in the actual cultivation of the *padi* is accompanied by rites which, in Iban eyes, are vital to the success of a crop. This continuum is a formidable labyrinth of diverse elements, and its complexity poses difficult problems in description and presentation. For the purposes of this report, I propose to begin with a discussion of settlement patterns, and then pass on to the *padi* cycle, and the techniques employed by Iban cultivators. Other sections will be devoted to the economics of agriculture, and methods of land usage. In the course of the discussion, frequent reference will be made to the magico-religious beliefs and practices of the Iban, but no more than passing reference. On the *padi* cult of the Iban I was able to collect a great mass of information, for it is still a living reality. I plan to deal fully with this most important and fascinating subject in a separate monograph, which will stand as a supplement to this present report. It must constantly be borne in mind however, that all these elements are integral parts of a single process; indeed, only when the inter-dependence of economics, social organization and ritual are understood can there be any genuine appreciation of the nature of Iban agricultural practice.

Shifting Cultivation and Settlement Patterns

67. Shifting cultivation may be briefly defined as an economy of which the main characteristics are "rotation of fields rather than crops; clearing by means of fire; absence of draft animals and of manuring; use of human labour only; employment of the dibble stick . . . . ; short periods of soil occupancy alternating with long fallow periods."[1]

68. The practice of shifting cultivation means that each family unit requires for its subsistence an extensive area of land. When working in virgin jungle it is usual for the Iban to cultivate half or more of a farm for two years in succession, but with rare exceptions a proportion of new forest is felled each year. In secondary jungle, on the other hand, it is normal for the whole of the farmed area to be abandoned after one crop has been taken. Iban methods of land usage, as will be explained presently, are complex, but when land is finally allowed to revert to secondary growth, it is left for as long as possible, and this is often for a

[1] K. J. Pelzer, "Pioneer Settlement in the Asiatic Tropics: Studies in Land Utilization and Agricultural Colonization in Southeastern Asia," New York, 1945, p. 17. ("Other terms for shifting cultivation are field-forest economy and field-forest rotation").

1: Freeman E-5 (1949-1951)1955 OC6 Iban OC6

period of fifteen years or more. In the course of time therefore, the various holdings of each *bilek* family become dispersed over a wide area. This dispersal creates special problems. 243x 311

69. Growing hill rice in jungle clearings is an undertaking fraught with many difficulties. One of the chief of these is the threat of depredation by marauding animals. In the forests live, and in large numbers, wild pigs, deer, and monkeys, all of which—given the chance—will invade a farm and take their fill of the growing *padi*. It becomes imperative therefore that a farm be vigilantly guarded. To achieve this the Iban live as near as they can to their farms. There are also other advantages. Much time and effort are saved if the farm be near at hand. During the course of the agricultural year a man visits his farm from 150 to 200 or more times. And the women, on whom the heavy burden of weeding and reaping falls, may be even more frequent visitors. By having a strategically placed base, a family can, in the course of a year, save themselves many hundreds of hours of arduous walking over difficult and hilly country. A subsidiary house, built in the same valley as the family's farm, brings within easy reach a hill-side that may be two to three hours' journey from the main long-house. This ease of access becomes an especial boon, when, after reaping, the *padi* has to be carried down from the hill tops—in huge baskets (*lanji*) slung from the shoulders—to be threshed, winnowed and stored. Again, a house near to relatively unfrequented jungle presents far better opportunities than does the main long-house for that foraging for wild fruits, fungi, and other edible plants, at which Iban women excel. There are likewise better opportunities for hunting and fishing. And at the same time, the precincts of the long-house are given a chance to recuperate. 243x 361

The Dampa System

70. All of these factors give rise to what we may call *the dampa system*. When a new settlement is founded, the forest in its immediate vicinity is felled first, and as long as farms lie within a radius of about half a mile to a mile (or slightly further, if they can be reached by canoe), activities are conducted from the main long-house. After a few years however, as more distant land is brought into cultivation, accessibility becomes a problem, and when this stage is reached the community breaks up into a number of distinct groups—each group farming in a different part of the long-house territory. Typically, the whole community moves to the same general quarter of the territory, where each group takes over the pioneering of a small (i.e. unnavigable) tributary stream. These arrangements are decided upon at a series of conferences (*baum*) in which all the *bilek* families of the community participate. A proposal to farm new land is first mooted by several closely related *bilek* families (i.e. containing siblings, first or second cousins), and usually such a group will have a leader who, although he is never formally appointed, plays a major part in the inauguration and planning of the venture. Ideally he is a man skilled in the taking of auguries. Other families develop parallel plans, and gradually several groups are formed. In size these groups vary from two to ten or more different *bilek* families, depending largely on the extent of the area in which they propose to farm. 243x 361 571

71. As soon as the composition of a group has been settled it then operates as a separate unit, its component *bilek* families deciding amongst themselves the way in which the tract of jungle they have chosen is to be parcelled out. But first of all they must decide upon a site for their farm house, or *dampa*. The spot selected is always centrally situated in the valley where cultivation is to occur 243x 361 571 342

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possess, in addition to its main farm (*umai*), a subsidiary farm—known as a *tampas*. Varying in area from one to two acres, a *tampas* is always cleared after work on the main farm has been completed. It is never in virgin jungle but almost invariably in young secondary growth, and near to the *dampa* of the family concerned. Again, for ritual reasons a *tampas* is always out of sight of the main farm where the *padi pun*, and other sacred rices are planted. In 1949, six *bilek* families of Rumah Nyala each possessed a *tampas*. Sketch maps of these subsidiary farms were also prepared, and in what follows *tampas* acreages have been included.

207. In estimating farm acreages two quite distinct stages have to be taken into account: (*a*) the area felled, and (*b*) the area under *padi*. By the phrase "area felled", I mean to denote the area of land from which jungle has been cleared with the intention of planting *padi*. If conditions are favourable the whole of this felled area is sown, but frequently this goal is not achieved. Adverse weather is usually to blame. Prolonged rain may so delay and hinder the burn that extensive sections of a farm (i.e. up to an acre and more in extent) have to be abandoned and allowed to revert to scrub. Again, a bad burn permits weeds to flourish to such a degree that, in some places, the *padi* is choked and fails to mature. Sickness or other domestic troubles may interfere with the operations of sowing and weeding, and prevent the full utilization of the land which has been cleared. Hewn out of the surrounding jungle an Iban *umai* is very conspicuous, and there is never any difficulty in discerning the boundaries of the felled area. As the harvest approaches however, a new problem arises. What is the area, in each farm, over which *padi* is actually growing? The extent of this area is a good deal more difficult to estimate. Often it is highly irregular in outline, with inlets of unfired scrub, and enclaves—steep banks and gullies—which it has not been possible to plant. When the *padi* reaches maturity these unplanted waste patches are clearly visible, and it becomes feasible to assess their extent. During the weeks that preceded the harvest, each of the farms of Rumah Nyala was re-visited, the sketch maps amended, and an estimate made of the area actually under *padi*. By the "area under *padi*" then, I mean to denote all those sections of a farm in which *padi* has been successfully brought to maturity; or, in other words, that area of a farm from which the crop is reaped.

208. In 1949, the total area felled by the 25 *bilek* families of Rumah Nyala was approximately 112 acres, while the total area under *padi* (according to my estimates) was 89 acres. This means that there were, in all, some 23 acres of cleared land (or 20% of the total) which were not sown, or on which *padi* failed to grow. This is a very high proportion, but it must be remembered that 1949 was an exceptionally wet year, and that in not one instance was there a really successful burn. Indeed, so inadequate was the firing of some farms at Rumah Nyala that it proved impracticable to plant more than about 60% of the area felled. In normal seasons the proportion of unsown land probably falls to about 5%—10% of the total, and in exceptionally dry years when the burn is complete only rocky outcrops and gullies would remain unplanted.

209. In 1949 the *bilek* family farms of Rumah Nyala varied in size (i.e. area felled) from 1¼ to 6¾ acres; while 70% of farms fell within the range of from 3 to 5½ acres. The total area felled was 112 acres. As there were 140—men, women and children—in the community, this means that the average area felled per head of population was 0·8 of an acre. (Within individual *bilek* families the average area felled per member ranged from 0·5 to 1·3 acres). If however we

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243 take the area actually under *padi* (i.e. 89 acres), the average per head of population drops to about 0·6 of an acre.

210. It is also of interest to examine the average acreage per worker, this has been done in Table 18.

Table 18: Acreage per Worker

	Ref.: area felled	*Ref.: area under padi*
Average area per head of population (140 men, women and children in the long-house)	0·8 acre	0·6 acre
Average area per worker (i.e. throughout agricultural cycle; a total of 85 persons, cf. Para. 164)	1·3 acres	1·0 acre
Average area per male worker participating in felling (total of 50 men and boys; 14 of the men went on journeys as soon as felling was completed)[1]	2·2 acres	
Average area per female worker (49 in long-house community)		1·8 acres
Average area per weeder (49 females, plus 11 men who assisted in weeding)		1·5 acres

211. In Part I of this report we recorded the fact that the average *bilek* family contains about 5 or 6 members, the arithmetical mean being 5·7 members. Accepting 0·8 acre as the area farmed per head of population, it follows that the average *bilek* family farm is about 4½ acres in extent. This figure is derived from detailed measurements of the conditions prevailing in one Iban community, but it is supported by my general observations in the Baleh region, and is, I believe, reasonably accurate. It is however, widely at variance with the estimate of 10 acres per year per family, which has been published by the Sarawak Department of Agriculture.[2] In my opinion this figure of 10 acres is undoubtedly an over-estimate. Nowhere in the Third or Second Divisions did I encounter a *bilek* family possessing a farm of this size, though it is possible that exceptionally large families (i.e. containing 12 or more members) might bring an area of about 10 acres into cultivation.

212. Comparative data on hill *padi* cultivation are scanty, but such material as does exist supports the view that the average area farmed annually by a family of *five members* does not *exceed* about 4 acres. Listed in Table 19 are estimates from five different regions in South-East Asia where hill rice is grown by the method of shifting cultivation.

[1]Seven of the fourteen men here listed were young men from the Ulu Batang Ai and the Sungai Kanyau. They were on a *bejalai*, and had become temporary residents of Rumah Nyala—each living with a different *bilek* family. Such temporary residents are called *orang kampar*. In return for their assistance in felling, etc. they received *padi* (for their return journey) from their hosts.

[2]Sarawak Department of Agriculture, Annual Report for 1948, p. 50.

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Table 19: Area Farmed Annually by Family of Five Persons under System of Shifting Cultivation of Hill Rice; Comparative Data for South-East Asia

Reference[1]	Region	Size of Family	Average Annual Acreage
(*a*) Leach	Burma	5	2½—3 acres
(*b*) Izikowitz	French Indo-China ..	5	3½ acres
(*c*) Pelzer	East Indies	5	2·47 acres
(*d*) Geddes	Sarawak (Land Dayaks)		3½ acres
(*e*) Freeman	Sarawak (Iban) ..	5	4 acres

213. An Iban farmer does not, of course, have any method of calculating the area of his farm. What he does know, from experience, is the rough extent of the land with which his *bilek* family can cope in any particular year. The crucial limiting factor, in most cases, is the area which the available labour force of the family can effectively weed. This, as we have seen, is about two acres per worker, under ordinary conditions. Very often a *bilek* family is in a position to increase the felled area of a farm (particularly when secondary jungle is being worked), but there is no point in going beyond the area which can be effectively cultivated. If this is done the family concerned is wasting its reserves of secondary jungle, and unnecessarily shortening the duration of its grand cycle of cultivation. In general however, there does seem to be an overall tendency to fell a slightly larger area than the family can comfortably cultivate. The Iban farmer is always praying and planning for a surplus, and with this end in view he usually makes his farm ambitiously large. This is also a policy of assurance against adverse conditions, for if a poor burn is encountered and part of the farm has to be abandoned, there will still be enough left to produce minimum requirements—or so the farmer hopes.

Yields

214. We now come to the problem of yields. What sort of crops do Iban families obtain from their clearings in the jungle? Collecting data on this subject was far from easy. It had been my intention to establish test plots on as many farms as possible, and collect a detailed series of measurements; but when I put this proposal forward, strong objections were raised, just as they had been against the surveying of farm land. The *padi* spirits (*antu padi*), the Iban claimed, would be deeply offended at such treatment; there was a danger indeed, that they might flee the farms and cause disastrously poor crops in subsequent years. So deeply

[1]References:

(*a*) Leach, E. R., "The Advancement of Science," Vol. VI, No. 21, p. 27 seq.: "Some Aspects of Dry Rice Cultivation in North Burma and British Borneo."

(*b*) Izikowitz, K. G. "Lamet: Hill Peasants in French Indo-China," 1951, p. 285.

(*c*) Pelzer, K. J., "Pioneer Settlement in the Asiatic Tropics," 1945, p. 24. (This estimate is based on the findings of the Dutch authority—Van Beukering).

(*d*) Geddes, W., New Zealand Geographical Society Record, No. 12, 1951, p. 7.

(*e*) This estimate is based on my average of 0·8 acre felled per annum per head of population; if allowance is made for land cleared but not brought into cultivation, a reduction is necessary. At Rumah Nyala in 1949–50, for example, the average area *under padi* per five persons was only 3·1 acres.

(cf. also, Allsop, F., "Shifting Cultivation in Burma," Proceedings of the Seventh Pacific Science Congress, vol. VI, 1953, p. 283: "It has been found that an average of two to three acres per family is as much as can be efficiently worked and is sufficient to provide ample supplies of food-crops if properly tended.").

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Part V

IBAN METHODS OF LAND USAGE

Introduction

261. In their natural state the hills of the Baleh region (i.e. up to about 1,000 feet) are covered with tropical, lowland, evergreen rain-forest. It is with this kind of forest that we shall be dealing in discussing land usage, for nowhere in the Baleh did I encounter Iban farming ridges more than 1,000 feet in height, though many farm clearings approached to within one or two hundred feet of this level. Prior to 1880, the forests over almost the entire Baleh basin were primeval.[1] To the Iban virgin jungle is the most highly valued of all resources: by felling it, rights over land are acquired, and, if weather conditions be favourable, virgin land yields crops of exceptional abundance for two years in succession. The "rich, untouched vegetation" of the Baleh was, to the Iban, the most inviting of prizes, and desire to exploit it was the over-ruling incentive of their advance and an important motive in prompting their fierce attacks on alien tribes that stood in the way. Head-hunting and a craving for virgin land went hand in hand. During the past eighty years, hundreds of thousands of acres have been felled and farmed, so that to-day aerial photographs of the Baleh show complex mosaics in which remaining enclaves of virgin forest are surrounded and interspersed with secondary jungle at many different stages of regeneration.

Iban Terminology for the Main Stages of Land Usage

262. Every land usage cycle begins with the felling of an area of primeval forest—the area felled varying from about three to eight acres according to the size of the *bilek* family concerned. For the primeval forest and the various types of secondary growth which result from the cultivation sequences that follow its felling, the Iban have a special set of terms. These terms conveniently summarize the main stages in land usage. Briefly they are as follows:

(*a*) The general term for primeval jungle is *kampong*, but it is commonly qualified—as in the phrases *kampong dalam* (lit. deep jungle), and *kampong amat* (lit. true jungle)—to signify that it has never before been felled.

(*b*) After felling the *kampong* is fired, and when this stage is reached, the farm land is referred to as *tegalan*. *Padi* is dibbled in betwixt and between the charred remains of the fallen trees, carefully tended throughout its growing period, and finally reaped. The stubble that remains when the harvest is over (i.e. in about April) is the *jerami*. Within a few months there is robust regeneration accompanied by coppice growth; in fact, it begins at the end of the weeding (i.e. early in January), so that by August the farm is covered with a dense scrub several feet in height. This scrub—the next important stage to be distinguished—is called *kruka*; and if it is scrub that has resulted from the felling the year before of

[1] According to Iban informants there were a few limited areas of secondary jungle which had resulted from the activities of the Lugat. The Lugat were a tribe (allied to the Kajang peoples of the upper Rejang) who formerly occupied the Baleh, but were driven out by Iban attacks.

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virgin forest, it is called *krukoh kampong*. It is normal Iban practice to slash this *krukoh kampong*, fire it, and farm the land two years in succession.[1]

(*c*) When *krukoh kampong* land is farmed, the subsequent regeneration is markedly less vigorous, and the plant composition of the resultant scrub is distinctly changed in character. This scrub—the outcome of cultivating land for two years in succession—is called *pangkal*; and if it has originated from *krukoh kampong*, it is called *pangkal kampong*. The farming of *pangkal kampong* occurs in a limited number of cases, but nowhere did I encounter, or hear reports of land being worked for four years in succession.

(*d*) If the *krukoh* scrub that springs up after the felling and firing of *kampong* is not farmed, but allowed to lie fallow for a year, it then becomes *dijap*. Several different kinds of *dijap* are distinguished according to the duration—in years—of the fallow period. For example, *dijap se taun* is *dijap* resulting from one year's fallow; *dijap dua taun* is *dijap* resulting from two years' fallow, and so on. *Dijap* may also result from land being farmed for two years in succession and then being left fallow for one or more years before re-use; in this instance it is known as *dijap krukoh kampong*. Again, *dijap pangkal kampong* is the growth which results when land is cultivated during three successive seasons and then left fallow for one or more years. *Dijap* is frequently felled and farmed—but never for two years running.

(*e*) After about five or six years, *dijap* (or the growth that follows the farming of *dijap*), changes from straggling thicket to well established secondary jungle; and when this stage is reached it is called *damun*. The point at which young secondary growth ceases to be *dijap* and becomes *damun* cannot be fixed with any exactitude. The distinction is an indefinite one, and I have heard growth on the borderline, referred to by both terms. Perhaps the difference is best marked by the practical test that whereas it is customary to clear *dijap* with a heavy bush-knife (*duku*), an axe (*kapak*) is used to fell *damun*. In general, the *damun* stage is reached after about five years, though a good deal depends on the usage to which the land has been submitted prior to its being allowed to lie fallow. Thus, if *kampong* land is felled and farmed only once, and then allowed to lie fallow, there is rapid and healthy regeneration; while in the case of land farmed two or three times in succession, or within a brief span of years, regeneration is retarded and much less vigorous. *Damun* can result from any of the types of usage listed in (*a*)—(*d*) above, that is: from *kampong*, *krukoh kampong*, *pangkal kampong*, *dijap kampong* and *dijap krukoh kampong*; and in each case it is different in character. Furthermore, *damun* is a general term applied to any kind of secondary jungle—from about five to twenty years of age and over; in this sense it is commonly used to describe any land over which customary rights of tenure have been acquired. When *damun* has reached maturity it is then frequently

[1] Cf. Howell and Bailey ("A Sea Dyak Dictionary," 1900, p. 70): "Kakah, s.—last year's stubble farmed this year; v. to farm last year's stubble." (This is the dialectal form of the Second Division).

Note: It should be noted that in this report we are discussing the terms used in the Baleh region. The same terms are employed by other Ulu Ai Iban, but different usages are encountered among the Iban of other parts of Sarawak. For example, Mr. A. R. Snelus noted in 1949 that "the term *damun* . . . . is seldom now heard and has been commonly replaced by the Malay word '*jerami*' amongst the Lemanaks and Layars of the Sarikei district," and further that "the word *temuda* is commonly used in application to *all* stages of secondary growth to connote merely *any* land over which customary rights have been acquired through original felling of the virgin jungle for the purposes of farming *padi*." It is clear that in assessing the analysis presented in this report, due allowance must be made for differences in terminology from district to district and from tribe to tribe.

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referred to as *pengerang*. Once again, no precise definition is possible; *pengerang* has the general meaning of "old secondary jungle", but it is the height and size of the trees and not the length of the fallow period which is the accepted criterion. The time taken for *damun* to reach the required level of maturity varies considerably, for *damun* may result from any one of a number of different land usage sequences, each of which produces a distinctive type of regenerative growth. As far as I was able to determine (i.e. by reckoning, with the aid of informants, the number of farming seasons that had elapsed since an area of secondary jungle was last felled), *damun* reaches the *pengerang* stage after a period of growth ranging from twenty to thirty years. After a lapse of anything from ten to thirty or more years, *damun* land is brought back into use.

(*f*) The scrub that grows up during the three or four months following the taking of a crop from *damun* land is called *krukoh damun*. To slash and burn this *krukoh damun* (i.e. to cultivate secondary jungle for two years in succession) is generally recognized as inexpedient practice by the Iban; weed growth tends to be so vigorous as to outstrip all attempts to cope with it, and subsequent regeneration is so inhibited that the land stands in danger of suffering lasting harm and becoming derelict (*tanah kus*). Nonetheless, the method is followed to a limited extent.

(*g*) The growth that emerges during the few months immediately succeeding the taking of a crop from *krukoh damun* land is known as *pangkal damun*. *Pangkal damun* is very rarely farmed, but during my two years in the Baleh I did encounter several instances—instances, that is, of secondary jungle (*damun*) being cultivated during three consecutive years.

(*h*) If *damun* be felled and farmed, and then permitted to lie fallow for one, two, three, or four years, the resultant scrub is termed *dijap damun*. The cultivation of *dijap damun* is fairly common.

(*i*) In due course, *dijap damun* (or the re-growth that follows the cultivation of *dijap damun*) reaches a stage of maturity entitling it to the general appellation of *damun*—i.e. well established secondary jungle. Strictly speaking, this kind of re-growth is *damun damun* (secondary jungle resulting from the cultivation of secondary jungle); this however, is a pedantic usage, and although I did hear it used by Iban in the course of a detailed explanation, it is customary to refer to all types of secondary jungle of whatever origin by the general and unqualified term: *damun*.

(*j*) It sometimes happens, because of heavy rain during the months of July, August and September, that the burn is a bad one, and so much so that part of the area which has been felled cannot be cultivated. In this event the land is allowed to revert to scrub for one year; it is then called *budu*. Two main kinds are distinguished: *budu kampong* and *budu damun*. After a year has elapsed the scrub is usually slashed, and a second attempt is made to fire it. This type of usage is only encountered after an exceptionally wet season however, and rarely comprises more than a minor percentage of the total area under cultivation.

263. It will be observed that the system of nomenclature recorded above follows a consistent pattern, but that while some terms (e.g. *kampong*, *krukoh kampong*, *pangkal kampong*) have a quite definite connotation, others (e.g. *dijap*, *damun*) are not rigidly defined and, in actual use, often overlap. This overlap seldom involves a period of more than two or three years however, and it becomes possible therefore to express the main distinctions recognized by the Iban in a simple form of notation. As the datum of this scale we have primeval

1: Freeman E-5 (1949-1951)1955 OC6 Iban OC6

jungle, or *kampong*—which I propose to designate by the letter *K*. Accepting this as a fixed starting-point, the subsequent usage to which any particular piece of *kampong* land is subjected may be denoted by affixing numbers that mark the years when cultivation occurred. For those years during which land lies fallow, no numbers are shown. Thus, *K*.1, records the first felling and firing of virgin jungle, while *K*.1-2, signifies that land (beginning as virgin jungle) has been cultivated for two years in succession, i.e. the farming of *krukoh kampong*. In Table 25, the main types of usage to be found among the Iban are listed. As already remarked, the term *damun* is applied to secondary growth after a fallow period of about five years has elapsed. In the normal course of events, however, the Iban do not bring *damun* back into use until it has reached an age of about twelve to fifteen years; in the examples given in Table 25, I have assumed a fallow period of fifteen years.[1] It will be noted that *damun* can be of several different types, depending on whether it has resulted from *kampong*, *krukoh kampong*, *pangkal kampong*, *dijap kampong*, or *dijap krukoh kampong*. (*Budu kampong*—i.e. jungle felled but not fired because of adverse weather conditions—is given the special notation of *Kb*).

Table 25: System of Notation Showing the Main Modes of Land Usage among the Iban of the Baleh Region

Type of Usage i.e. farming of	*Notation*
kampong	K 1
krukoh kampong	K 1–2
pangkal kampong	K 1–2–3
dijap kampong	K 1–3
	K 1–4
	K 1–5
dijap krukoh kampong	K 1–2–4
	K 1–2–5
	K 1–2–6
damun	K 1–16, etc.
	K 1–2–17, etc.
	K 1–2–3–18, etc.
	K 1–3–18, etc.
	K 1–2–4–19, etc.
krukoh damun	K 1–16–17, (and so on)
pangkal damun	K 1–16–17–18, (and so on)
dijap damun	K 1–16–18
	K 1–16–19
	K 1–16–20 (and so on)

Iban Modes of Land Usage in Pioneer Regions

264. We are now in a position, equipped with the necessary terms, to discuss the principal modes of land usage to be found among the Iban of the Baleh. As in previous sections of this report we shall be dealing, in the main, with observations made at Rumah Nyala, in the Sungai Sut. Despite the fact that Iban have been living in the valley of the Sut for something like fifty years, virgin jungle (*kampong*) was still being felled at Rumah Nyala in 1949-50, and I was fortunate in being able to witness many different types of land usage. Before beginning our survey there are several preliminary points which should be made. Iban methods

[1] In cases where the usage history of secondary jungle is not known, it may be designated by the letter 'D,' and subsequent usage indicated as for *kampong* (e.g. *krukoh damun* becomes D 1 — 2).

1: Freeman E-5 (1949-1951)1955 OC6 Iban OC6

of land usage are complex. There is however, one general feature of especial significance: *a marked tendency (particularly when working virgin forest) to farm land for two years in succession, before letting it revert to secondary jungle.* I want to stress the prevalence of this practice from the outset, for it is of the greatest consequence that Government officers should be fully aware of its existence. In the past there seems to have been a general impression that after each harvest "a bush fallow period of from 12-15 years" was always observed before another crop was taken. When I first reported the existence of '*krukoh farming*' (i.e. the taking of two consecutive crops from the same piece of land), I was told, by officers of experience, that I was mistaken for it was well known that the Iban did not farm in this way. Yet, as we shall see, *krukoh* farming is a time-honoured Iban custom, which has had a most deleterious effect on hundreds of square miles of land—in the Third Division and many other parts of the territory of Sarawak.

The Predilection of the Iban for Virgin Jungle

265. Every land usage cycle begins with the felling of virgin jungle. During the past hundred years, many thousands of acres of primeval forest in the Rejang basin have been felled by Iban axes, and in the Baleh (and other similar pioneer areas) this onslaught is still going on. From the historical survey (presented in Part II of this report) of the Iban occupation of the Batang Rejang and its tributary rivers and streams, it emerges clearly that the Iban are a virile and resourceful people with an insatiable appetite for virgin land. The motives which prompt this appetite are many. Foremost is the knowledge that, given good weather, two and more crops of exceptional abundance may be harvested from an *umai kampong*. In their prayers (*sampi*) at the time of *pemanggol*, the Iban ask for:

"Land that is fat, fat in deep layers,
Luxuriant land, land that is fruitful,
Soil soft and fecund, land richly fertile;"

and they know that this is most likely to be found in tracts of *kampong*, on untouched slopes and terraces, where the humus of centuries lies thickly. The labour expended on an *umai kampong* is heavy, but it holds high promise of a surplus—a surplus that leads to property and prestige and all the other things most desired by Iban hearts.

266. By felling virgin forest a family obtains rights of ownership over land, rights of usufruct over the secondary jungle which in due course springs up; and by Iban *adat* these rights are permanently vested in the family and its heirs for as long as they elect to exercise them. Among shifting cultivators like the Iban land is of pre-eminent importance. Land is wealth, and upon its land holdings depend the prosperity and indeed, the very subsistence of a *bilek* family. Under these conditions access to virgin territory is a prerogative of the utmost consequence, for it presents a family with the opportunity to expand its wealth and attain a position of economic security. There is no need to wonder at the "land-rush" which marked the opening of the rich forest lands of the Baleh to Iban settlement. The well-being of many an Iban family springs from the privileged position it gained in that scramble.

267. The cultivation of virgin jungle brings innumerable minor advantages. Timber for building, for making canoes and a score of different implements, *rotan* for mats and baskets, palm fronds for thatching, iron-wood for roof shingles, resin for lighting, bark for *padi* bins—all these things lie close at hand. Indeed, the whole material culture of the Iban is based on the rain-forest, and in

See pp. 11-26, Cat. 116.—Analyst]

1: Freeman E-5 (1949-1951)1955 OC6 Iban OC6

areas where it has all been felled, the inhabitants find themselves in something of a plight, and long journeys have to be made to secure essential materials. Again, proximity to *kampong* ensures good and varied supplies of food—relishes to enliven the monotony of rice—for in the rain forest there are many opportunities for the hunter, and the streams are well stocked with fish.

The Krukoh Method

268. In the ordinary course of events the magico-religious rites that precede the felling of virgin jungle are performed in May or early June, and thereafter the cycle of cultivation follows the course already described. By the time reaping is completed, in the following March or April, regeneration of the forest has begun—young plants are springing up amid the *padi* stubble (*ierami*), and in the places least affected by the burn there is vigorous coppice growth. By July, a dense, though still diminutive scrub has established itself, and the farm has reached the *krukoh* stage.

269. When pioneering virgin territory it is normal Iban practice to slash this *krukoh* scrub in late July or early August, and after it has been fired, to sow the land once more with *padi*—that is, for a second year in succession. To farm in this way is to *ngrukoh*, or to *bekrukoh*, and for the Iban it is the generally accepted mode of procedure when virgin jungle is being worked. In all the pioneer areas visited by me, *krukoh* farming was an established practice. The Iban themselves look upon it as completely normal, legitimate and economic; and from their testimony (I discussed this matter with scores of different informants), it is clear that *krukoh* farming has been a customary method of land usage for very many years. We need not be surprised at this state of affairs, for the practice of taking two or three consecutive crops from forest land has been reported from many other parts of South-East Asia.[1] Indeed it seems to be the prevalent system among shifting cultivators who have ample reserves of forest land at their disposal.

270. Among the Iban it does sometimes happen that the whole of a *kampong* farm is cultivated for two years in succession, but the much more common system is to re-plant only about one-half to two-thirds of the old farm, and to make up the desired acreage by felling a further area of virgin forest. All of the *bilek* families whose farms contained a substantial proportion of virgin jungle in 1949-50, adopted this method. Iban social organization being what it is, there are in this system of gradual advance certain definite advantages. The *bilek* family, which is the basic unit in Iban agriculture, is restricted in numbers, and many *bilek* families have only one male in their labour team. This means that for many families the task of felling three or four acres of virgin jungle is a formidable one, and difficult to maintain year after year. If, however, an initial area of say three acres is felled, and about half of it cultivated for two years in succession, then the family concerned has only to clear one to two acres of new jungle to bring its farm up to the required size. By adopting this method a *bilek* family is able to farm well within its labour resources, and—at the same time—steadily to increase its land holdings.

271. A further advantage of this twofold system (from the Iban point of view) is that it lessens the chance of adverse weather interfering with the all-important

[1] For example, the cultivation of hill *padi* for two or more consecutive years has been reported in Malaya ("Padi Planting Methods in Malaya," M. A. J., Vol. 27, 1939, p. 58), in Sumatra (Danhof, 1940, p. 29), in the Philippines (Copeland, 1924, p. 22) and in Southern India (Ramiah, 1937, p. 12 and Fürer-Haimendorf, 1945, p. 78 seq.).

1: Freeman E-5 (1949-1951)1955 OC6 Iban OC6

burn. One of the hazards of farming virgin jungle is the Borneo climate. In the interior of Sarawak the rainfall is heavy, and falls of 160 inches and more per annum are not uncommon. In general, June and July are the driest months, but the rainfall is never really low. Records taken at Kapit, for the four years 1948-1951, show a monthly mean of 7·66 inches for June, and 8·17 inches for July. But this comparatively 'dry period' cannot be relied upon. In 1949, for example, 17·40 inches fell in May, 9·55 inches in June, 11·33 inches in July, 13·81 inches in August, and 12·76 inches in September; so that in this year there was no *kamarau*, or dry season. When adverse weather, such as this, is encountered, *kampong* farms suffer the most, for virgin forest needs a longer 'dry period' than any other type of jungle. In contrast, slashed *krukoh* requires the briefest dry spell of all, and will burn well after about five days of tropical sunshine. Even in adverse years a brief span of hot, dry weather often occurs, and *krukoh* land can often be successfully fired under conditions inadequate fo. the proper firing of an *umai kampong*.

272. But there are also several other factors which prompt Iban addiction to *krukoh* farming. Of most importance is the fact that, in general, the yield obtained from *krukoh* land is usually as good—and not infrequently better—than the yield taken from *kampong* land. The *krukoh* scrub which springs up after the first harvest is vigorous and contains few, if any, of the weeds that are the great bugbear of the Iban farmer. Thus, when *krukoh* has been slashed and burned, the land is still predominantly free from weed infestation, and at the same time there is sufficient richness in the soil to assure a second crop of excellent quality. A thoroughly burnt *krukoh* farm may well produce a heavier crop than a poorly fired *kampong* farm. The Iban are fully aware that good virgin land is capable, under favourable conditions, of producing two consecutive crops of the highest quality; and it is understandable—if not excusable—that they should yield to the temptation of trying to grow and reap them. That two successive and abundant crops can be harvested from *kampong* land is an undoubted fact, and it is important that this should be realized. It is also true that successive cropping inflicts permanent injury on the land; but cognizance of this consequence calls for an appreciation of principles of good husbandry which the Iban—alas—do not possess.

Iban Prodigality

273. Of the fact that the Iban are prodigal of the land there can be no doubt. They are, indeed, *mangeurs de bois*. It is not difficult to explain why they have become like this. Ever since they broke into the Rejang basin more than a hundred years ago, the Iban have had before them limitless tracts of virgin rain-forest. As the Tuan Muda (later Sir Charles Brooke—the Second Rajah of Sarawak) records in his journal of 1863, the middle Rejang and the Baleh were, at that time virtually uninhabited, and "clothed with rich, untouched vegetation"; with virgin forests that were "luxuriant to the wildest extent". From their numerous forays into Kayan country, the Iban well knew the vastness of these primeval forests—which were theirs for the taking. In these circumstances of super-abundance, the forest became an expendable resource. The impulse of the Iban was to extract all the wealth they could from the nearest virgin land, and then move on to fresh fields. (This also had the effect of opening up many new opportunities for head-hunting, the looting of enemy property, and the taking of slaves). In a sense, the Iban became semi-nomadic, for in one generation many *bilek* families moved forward, in stages, over fifty to a hundred miles of territory,

1: Freeman E-5 (1949-1951)1955 OC6 Iban OC6

devouring virgin jungle as they went. But unlike true nomads, the Iban did not retrace their steps; there was little inducement to return to inferior secondary jungle when virgin forests beckoned them on. It is clear that the *krukoh* method of farming has long been an essential feature of the Iban system of shifting cultivation, and that it has gone hand in hand with the remarkable advance of the Iban into the Rejang basin and beyond.

Other Advantages of the Krukoh Method

274. *Krukoh* farming is a method then, of quickly extracting the maximum return from virgin land. But it also has other advantages, in Iban eyes. One of these is the fact that, should it become necessary, a group of women can handle a *krukoh* farm without male assistance. In cases where the men of a *bilek* family are absent on journeys (*bejalai*), or prevented from working because of mishap or sickness, the women are able to meet these situations by re-cultivating (*bekrukoh*) the whole of their farm of the previous year. Again, in many long-house communities there are one or two *bilek* families without adult male members. Commonly they are the households of widows with young children. (Both at Rumah Nyala and Rumah Sibat there were families of this kind). These families, it will be clear, are not able to farm virgin jungle. Usually, by means of the *bedurok* system (Para. 183-190), they exchange their services (in slashing, etc.) with other households, and so manage to obtain male assistance in felling secondary jungle (e.g. *damun* or *dijap*). However there are sometimes difficulties in making this arrangement, and there is a tendency for families lacking mature males, to resort to *krukoh* (and *pangkal*) farming, rather more often than do normal households. Further, such families are often granted the temporary use of *krukoh*, *pangkal* or *dijap* growth, on land belonging to their kith or kin. This is also a common practice when a new *bilek* family joins a long-house. Such newcomers are liable to arrive after felling has begun, and they are almost always faced with the pressing task of having to build an apartment for themselves. In these circumstances they are often given the use of a tract of *krukoh* or *dijap* on land belonging to kinsfolk, for both these types of growth can be rapidly slashed towards the end of the felling period.

275. It may also be noted that the *krukoh* method makes it feasible for a *bilek* family to extend the area of its farm when this is required by special needs. When a *gawai* is to be staged, or when the important last rites for the dead have to be performed, extra supplies of *padi* are required. Usually a *bilek* family will attempt to secure this *padi* by increasing the area of its main farm, or by establishing a *tampas*, or subsidiary farm. Typically these extensions are in *krukoh* or *dijap*, for such young secondary growth can be speedily slashed at the end of the normal felling period, and yet be dry in time to permit a satisfactory burn. Although the *krukoh* method is primarily associated with the farming of virgin forest (*kampong*) it is also adopted—as we shall see—when mature secondary jungle (*damun*) is being worked.

276. From what has been said so far, it will be seen that the *krukoh* system is a customary method of land usage, which—from a short-term point of view—possesses a number of very real advantages. In drawing attention to these advantages, I am in no sense condoning the *krukoh* method, for it is in my opinion an entirely pernicious practice; but it is important—and especially for those concerned in designing remedial measures—to realize how prevalent the *krukoh* system is, and how deeply it is rooted in the traditional economy of the Iban people.

1: Freeman E-5 (1949-1951)1955 OC6 Iban OC6

The Pangkal Method

277. So far we have been devoting our attention to the practice of cultivating land during two consecutive seasons. It also happens—although to a very much lesser extent—that land is sometimes farmed for three years in succession. This, adopting the Iban word, we may term the *pangkal method*. The *pangkal* method is however, only very rarely followed, for when land is farmed for three years running the quality of the crop declines sharply; and the three successive firings result in a rapid regression from the climax type of vegetation, and weed infestation is severe. For these reasons *pangkal* land is only farmed in special circumstances. Sometimes—as happened at Rumah Nyala in 1949—a household decides to make up the acreage it requires by farming a small patch of *pangkal* land, and so avoid the necessity of having to move to another part of the long-house territory. It also occasionally happens that a strip of *pangkal* land is used to make a link between two sections of a farm. This sort of usage is necessitated by the ritual rule that an Iban *umai*, whatever its shape, must be all of a piece, for any break in the farm would form an obstacle in the path of the *padi* spirits (*antu padi*). Thus, at Rumah Nyala in 1950, a patch of *pangkal damun* (about three square chains in area) was used to join the upper and lower sections of a mixed farm. According to Iban informants, farms consisting wholly of *pangkal* land are never found, and certainly, I did not encounter any in the Baleh area. Further, they stressed the point that no family could hope to provide for its subsistence from *pangkal* land alone ("*Enda tau idup ari pangkal aja*").

The Dijap Method

278. Allied to the *krukoh* system is the common practice of cultivating young secondary growth of the kind known as *dijap*. As already noted, *dijap* is a general term and describes the scrub that results after fallow periods of one to three years. Moreover, *dijap* may be of several different types, depending on whether it has resulted from the previous cultivation of *kampong*, *krukoh kampong* or *damun*. For one type of *dijap*—of the kind known as *bali umbang*—the Iban have a special penchant. The phrase *bali umbang* is applied to *dijap* which has reached the stage when the chips of a previous felling have partially rotted away. (*Bali*—to change; *umbang*—any kind of refuse, and in this context the chips produced in tree felling). This stage is reached after a fallow period of about three years, and it is recognized by the Iban that *bali umbang* land is likely to produce especially good crops.

Summary of Principal Features of Iban Land Usage in Virgin Territory

279. Let us now attempt to summarize the principal features of Iban land usage in virgin territory. In every long-house community diverse methods are likely to be encountered. It sometimes happens that both the *krukoh* and the *dijap* stages are omitted, and occasionally ritual happenings, omens, dreams, etc. give rise to aberrant forms of usage; but these are all exceptions, and for pioneer communities as a whole it is possible to make the following generalizations:

(i) there is a strong tendency for virgin jungle (*kampong*) to be cultivated (at least in part) for two years in succession—this we may call *the krukoh kampong method*;

(ii) if this consecutive cropping does *not* occur, the land is almost always cultivated again after a fallow period of one to three years—*the dijap kampong method*;

(iii) it is not unusual for these two methods to be combined, so that land is

1: Freeman E-5 (1949-1951)1955 OC6 Iban OC6

311 cultivated three times in the first five to seven years following the felling of virgin jungle (*kampong*)—*the dijap krukoh kampong method.*

Methods of Usage in Secondary Jungle

280. In the majority of cases then, virgin jungle is cultivated two or three times before being left for a lengthy period to recuperate and become *damun*. The duration of the fallow period is chiefly determined by *the population-land balance* in the territory concerned; and this, of course, varies from long-house to long-house within each district, and from district to district within Sarawak. Among the Iban themselves it is recognized that the longer *damun* land is left, the better; and, in general, as protracted a fallow period as possible is observed.
805 The Iban do not, of course, have any means of recording the passage of the years, and secondary jungle is thought of not so much in terms of its age, as in terms of its apparent maturity. What happens has already been described in discussing the *dampa* system (Para. 70-74). After all or most of the *kampong* in one section of the long-house territory has been worked out, the *dampa* group moves off to another part of the territory, and so on, until return has to be made to the original section. When this return is made, the most mature *damun* available to each *bilek* family is felled first. Within each Iban community a variety of different usage
311 cycles are usually encountered, for all *bilek* families do not possess the same amount
471 of land. Rights over land are acquired by the felling of virgin jungle, and so the founding *bilek* families of a long-house community normally possess more than families that have arrived subsequently. Again, when a *bilek* family increases in size and partition occurs, there is then proportionately less land available to these two sections, than to a small family that does not so divide. It often happens therefore—even within the same long-house territory—that some families are forced to observe a considerably shorter usage cycle than others.

281. Similarly, some long-houses—as a whole—are a good deal better off than others. Some communities in the Baleh area have sufficient land for most of their *bilek* families to follow a grand cycle of cultivation of from 20 to 30 years' duration, and a few are even more favourably situated. There are others that have been forced down well below the 20-year limit. At Rumah Nyala, I encountered *damun* fallow periods ranging from 11 to about 20 years, with most cases falling between 13 and 16 years. It should be noted however, that these are only estimates based on Iban testimony, and further, that I was able to observe only a limited number of instances.

The Cultivation of Krukoh Damun and Dijap Damun

311 282. It is noteworthy that the felling of *damun* sometimes initiates a further period of intensive cultivation similar to that to which virgin land is submitted. Thus, during the two seasons I was at Rumah Nyala both *krukoh damun* and *dijap damun* were farmed. In 1949, three different families worked *krukoh damun*, the total area being about three acres, and the greatest area for any one family being one and a half acres. In the same year six families farmed *dijap damun*; the total area involved being very nearly ten acres. Of these six families, two were those of widows (i.e. households lacking male labour), and in three other cases *dijap damun* land was used as a *tampai*, or subsidiary farm. The remaining case was that of a *bilek* family with a sub-normal male at its head. The whole of this family's farm of about three acres was comprised of *dijap damun*. It was easily the worst farm at Rumah Nyala; weed infestation was exceptionally severe, choking

1 [See pp. 33-35, Cat. 116-Analyst]

1: Freeman E-5 (1949-1951)1955 OC6 Iban OC6

the *padi* on over two-thirds of the land, and only about seven bushels of grain were harvested. This particular piece of land had been subjected, by the end of 1950, to the following usage: *K*1-2-3-16-19; it was then profusely scattered with *lalang* (Imperata sp.) and other weeds, and had become virtually derelict. This is an extreme example, but it does demonstrate the lengths to which Iban prodigality can go. But before discussing the serious problems to which Iban methods give rise, let us turn to a more detailed examination of land usage as observed at Rumah Nyala.

Land Usage at Rumah Nyala

283. During the 1949-50 *padi* season, there were at Rumah Nyala, 26 main farms, or *umai*, while six *bilek* families had subsidiary farms, or *tampas*. The total acreage cleared was about 112 acres. The jungle covering these 112 acres immediately prior to felling or slashing (i.e. in May, 1949) was of the following types:

Table 26: Types of Jungle Cultivated at Rumah Nyala during the 1949-50 Padi Season

Type of jungle	*Type of Usage*	*Acreage*	*Percentage of total acreage cleared*
kampong	K 1	26½	23·5%
krukoh kampong	K 1-2	3	2·7%
pangkal kampong	K 1-2-3	2	1·7%
dijap krukoh kampong	K 1-2-5	7½	6·7%
damun	D 1	60½	54·0%
krukoh damun	D 1-2	3	2·7%
dijap damun	D 1-3, D 1-4	9½	8·7%

284. The data in this Table are based on detailed sketch maps or surveys. It will be noted that there were two main types of jungle being farmed: *kampong* (virgin jungle) and *damun* (old secondary jungle); but that young secondary growth (e.g. *krukoh*, *pangkal* and *dijap*), varying from a few months to about four years of age, accounted for an appreciable proportion (i.e. 22·5%) of the total. In 1950, I was not able to make a detailed survey of the *padi* land of Rumah Nyala, but all farms were examined and the following general estimate made:

Table 27: Types of Jungle Cultivated at Rumah Nyala during the 1950-51 Padi Season

kampong (virgin jungle)	9%
damun (old secondary jungle)	64%
young secondary growth (*budu*, *krukoh*, *pangkal* and *dijap*)	27%

285. In interpreting these data it must be borne in mind that the territory of Rumah Nyala—in the lower Sungai Sut—is at an intermediate state of development. In 1949, it contained both mature secondary jungle (i.e. *damun* dating from about 1924,) and a few remaining tracts of virgin jungle (*kampong*). This situation accounts for the widely varied types of jungle recorded in Tables 26-29. A newly founded community on the fringe of the Iban advance (e.g. Rumah Sipang, in the Entulu-Merirai) would be farming only *kampong*, *krukoh kampong* and *dijap kampong*; while communities lower down the Rejang (as in many parts

1: Freeman E-5 (1949-1951)1955 OC6 Iban OC6

311 of the Second Division, having long since felled the last of their virgin forest, are restricted to various types of secondary growth. At Rumah Nyala we are confronted with examples of land usage typical of both these stages of development.

The Varied Composition of Bilek Family Farms

286. Of particular interest—for both seasons under review—was the high proportion of farms containing more than one type of jungle. In 1949-50, there were six farms of mixed type (i.e. 23% of the total number of farms); and in 1950-51, the proportion rose to 62%, when there were 16 farms of mixed composition. To give an indication of the widely varied kinds of usage to be found in Iban *bilek* family farms, I have listed under separate headings all of the different arrangements recorded at Rumah Nyala during the two seasons 1949-50 and 1950-51.

Table 28: Types of Usage in Individual Bilek Family Farms of Rumah Nyala

	Types of jungle represented in main bilek family farm, or umai	*Incidence*	
		Season of 1949–50	*Season of 1950–51*
1.	(a) *kampong*	6	1
2.	(a) *kampong* (b) *krukoh kampong*	—	5
3.	(a) *kampong* (b) *budu kampong* (c) *krukoh kampong*	—	1
4.	(a) *kampong* (b) *krukoh kampong* (c) *pangkal kampong*	1	—
5.	(a) *kampong* (b) *dijap kampong*	—	1
6.	(a) *kampong* (b) *krukoh kampong* (c) *damun* (d) *krukoh damun*	1	—
7.	(a) *kampong* (b) *damun* (c) *krukoh damun*	—	1
8.	(a) *kampong* (b) *budu kampong* (c) *krukoh kampong* (d) *dijap kampong* (e) *krukoh damun* (f) *pangkal damun* (g) *dijap damun*	—	1
9.	(a) *dijap krukoh kampong*	1	1
10.	(a) *damun*	11	8
11.	(a) *damun* (b) *krukoh damun*	2	3
12.	(a) *damun* (b) *budu damun* (c) *krukoh damun*	—	1

1: Freeman E-5 (1949-1951)1955 OC6 Iban OC6

Table 28—continued

Types of jungle represented in main bilek family farm, or umai	Incidence	
	Season of 1949–50	Season of 1950–51
13. (a) *damun*		
(b) *dijap krukoh kampong* ..	1	—
14. (a) *damun*		
(b) *dijap damun*		
(c) *dijap krukoh damun*	1	—
15. (a) *dijap damun*	2	—
16. (a) *damun*		
(b) *krukoh damun*		
(c) *dijap damun*	—	1
17. (a) *damun*		
(b) *dijap kampong*	—	1
18. (a) *damun*		
(b) *dijap damun*	—	1
Totals	26	26

287. Subsidiary farms (*tampas*), for the two years under review, were of the following types:

Table 29: Types of Usage in Subsidiary Farms, or Tampas (of Rumah Nyala)

Types of jungle represented in subsidiary bilek family farm, or tampas	Incidence	
	Season of 1949–50	Season of 1950–51
1. (a) *budu kampong*	—	1
(b) *krukoh kampong*		
2. (a) *pangkal kampong*	1	—
3. (a) *damun*	2	1
4. (a) *krukoh damun*	—	1
5. (a) *dijap damun*	3	—
Totals	6	3

288. The facts summarized in these Tables are illustrative of many different facets of Iban land usage. What is of particular interest for our present analysis is the high proportion of *bilek* family farms in which some kind of young secondary growth appears. Thus in the 1949-50 season, nine different farms (i.e. 35% of the total number of *umai*) contained a piece of young secondary jungle; while in 1950-51, there were seventeen such farms (or 65% of the total). Six of the nine subsidiary farms, or *tampas* (ref. Table 29) were composed entirely of young secondary jungle.

1: Freeman E-5 (1949-1951)1955 OC6 Iban OC6

The Cultivation of Krukoh Kampong at Rumah Nyala

311 289. Let us now examine more closely the eight *bilek* families whose farms—in 1949-50—contained virgin jungle (*kampong*). To what extent did these eight families follow the *krukoh kampong method* in 1950-51? The answer is that *all* of them cultivated at least a part of their *kampong* land for two years in succession. Table 30 gives a detailed record of what happened.

Table 30: Bilek Families Following the Krukoh Kampong Method

Bilek family (name of pun bilek is given)	*Area of kampong land farmed in 1949–50; in acres*	*Approximate proportion of this land which was cultivated again, as krukoh kampong, in 1950–51*
No. 1a Bangs	¾	66%
No. 2 Dumo	2	50%
No. 3 Sube	3	66%
No. 4 Sating	4	50%
No. 5 Kamba	4½	66%
No. 6 Limau	3	66%
No. 17 Ja	4	75%
No. 22 Anjing	5	60%

It will be seen that in 1949-50 a total of about 26¼ acres of *kampong* land was cleared and farmed at Rumah Nyala. I estimate that of this total area, about 16½ acres were slashed, and cultivated a second time. This estimate is only an approximate one, but we will not be far from the truth if we say that about 60% of *kampong* land was subjected to *krukoh* usage.

290. A further question now arises. When the *krukoh kampong* method is followed, what proportion of the total area of any one farm is made up of *krukoh kampong*? First, let it be said that nowhere in the Baleh did I encounter a farm comprised entirely of *krukoh kampong*. What then of the eight *bilek* families of Rumah Nyala that cultivated *krukoh kampong* land in 1950-51? Two of these were mixed farms in which *krukoh kampong* comprised only 10% and 20% respectively of the total area cultivated. The six other farms were made up partly of *krukoh kampong*, and partly of *kampong* (or *budu kampong*), and this—as already noted—is the customary method of advance when virgin territory is being farmed.[1] For these six farms the proportion of *krukoh kampong* ranged from about 50% to 66% of the total area farmed, the general average being about 60%. Observations made in other parts of the Baleh suggest that these proportions are typical of normal Iban practice.

The Cultivation of Krukoh Damun at Rumah Nyala

291. Let us next consider the even more improvident action of cultivating *krukoh damun*. In 1949-50, 16 of the 26 *bilek* families of Rumah Nyala contained *damun*. In 1950-51, 8 (or 50%) of these families cultivated part of their *damun* land (i.e. first cleared in 1949) for a second year in succession. As these figures indicate, the *krukoh damun* method of usage is practised markedly less—by those who are in a position to adopt it—than is the *krukoh kampong* method. Again, *krukoh damun* land rarely, if ever, comprises more than about one quarter of the total area of any one farm; whereas with *krukoh kampong* the proportion some-

[1] Cf. Allsop, F., "Shifting Cultivation in Burma," Proceedings of the Seventh Pacific Science Congress, vol. VI, 1953, p. 278: "When two crops are taken from each clearing, it is usual for each household to work one first-year and one second-year area together."

1: Freeman E-5 (1949-1951)1955 OC6 Iban OC6

times rises to about two-thirds. From a rapid survey of the farms of 1950-51, I 311
would estimate that, on an average, *krukoh damun* comprised about one sixth of a farm's total area. This conclusion is supported by more exact data for the three *bilek* families that cultivated *krukoh damun* land in 1949-50:

Table 31: Cultivation of Krukoh Damun at Rumah Nyala in 1949-50

Name of bilek family	*Total area of farm, in acres*	*Area of krukoh damun, in acres*	*Krukoh damun as a percentage of the total farm*
No. 1a Bangi	5	¼	10%
No. 7 Gadu	6½	1½	23%
No. 16 Jala	6	1	16%

Although the cultivation of *krukoh damun* is less prevalent than the cultivation of *krukoh kampong*, it is sufficiently widespread to be ranked as a customary method of land usage. Moreover, it deserves even greater condemnation than the *krukoh kampong* method, for its effect on the land is much more deleterious.

The Effects of Shifting Cultivation

292. Let us now turn to a survey of the effects of shifting cultivation. This is not a subject on which an anthropologist is entitled to speak with any authority, but in view of the great paucity of reliable information, a few general comments may be of interest to future investigators. Since the practice of shifting cultivation first came to the attention of scientific observers, judgements on its merits and demerits have been very mixed. Some have condemned the entire system out of hand—and with no small emotional fervour. But such attacks contribute little to our understanding. Of the fact that shifting cultivation often leads to deplorable results there can be no question; but this does not necessarily mean that the whole system is evil. In my opinion, *it is crucially important to recognize that within the general system of shifting cultivation there are both good and bad methods of land usage.* I also believe there can be little doubt but that the great bulk of the Iban population will continue to live by shifting cultivation for many years to come,[1] or at least in the immediately foreseeable future. It therefore becomes a matter of the utmost consequence to single out bad methods of land usage so that some attempt may be made to eradicate them; and, at the same time, to recognize and encourage methods which, if not commendable, are at least technically tolerable. With these objects in view, let us examine some of the effects of Iban methods of land usage.

Regeneration after the Cultivation of Virgin Jungle, or Kampong

293. The primeval forests of the Baleh region belong (up to 2,500 feet) to 137
Burtt-Davy's 'tropical lowland evergreen rain-forest' formation;[2] this is sub- 311
divided by Symington[3] into 'lowland dipterocarp forests (0-1,000 feet)' and 'hill dipterocarp forests (1,000-2,500 feet)'.[4] For the most part the Iban cultivator

[1]This view has now been accepted by the Department of Agriculture, Sarawak; ref. Annual Report for 1949, p. 4, para. 19.

[2]Burtt-Davy, J.: "The Classification of Tropical Woody Vegetation Types," Imperial Forestry Institute, Paper No. 13, 1938.

[3]Symington, C. F.: "Foresters' Manual of Dipterocarps," Malayan Forest Records, No. 16, 1941.

[4]Mr. H. G. Keith ("The Timbers of North Borneo," North Borneo Forest Records, No. 3, 1947), gives a good general description of the Borneo rain-forest. Its chief characteristics are

1: Freeman E-5 (1949-1951)1955 OC6 Iban OC6

137 confines his attention to hill-sides and ridges up to about 1,000 feet in height. The
311 felling and firing of virgin forest involves great havoc, but regeneration begins almost at once, and within a few weeks of the completion of the *padi* harvest, the land is often substantially covered with a vigorous growth of young plants. After three to four months, recuperation is well advanced, and the farm has then reached the *krukoh* stage. On 23rd August, 1949, together with Mr. B. E. Smythies (then Forestry Officer, Third Division), I visited a number of farms belonging to members of Pengulu Jenggut's house in the lower Batang Baleh. One of these farms was at the *krukoh kampong* stage, i.e. virgin forest had been felled about 13 months previously and one crop of *padi* had been taken from the land. Mr. Smythies has described this patch of *krukoh kampong* in these words: "There was ample and vigorous regeneration of tree species, both by coppice shoots and by growth from seedlings; a few ferns had sprung but no *lalang* or other weeds, and it was obvious that a complete cover of trees and shrubs would be established in another one or two years if left undisturbed".[1] It should be mentioned that this patch of *krukoh kampong* was within half a mile of a *lalang* infested area of derelict land (*tanah kusi*) presently to be discussed.

294. Mr. Smythies' words might also have been written of any of the other tracts of *krukoh kampong* which I examined in various parts of the Baleh region. Moreover, judging from observations made at Rumah Nyala, regeneration subsequent to the *krukoh* stage is even more rapid than Mr. Smythies predicts. I was able, for example, to follow the recuperation of *kampong* land which had been cleared and farmed in 1949-50; by February, 1951, that part of the land not cultivated again in 1950, had reached the stage known as *dijap kampong*. This *dijap kampong* had become (about nine months after the harvest of 1950) a dense thicket of thriving plants, many of the young trees being eight feet and more in height (Plate 23). There can be no doubt that, if unmolested, this *dijap* would become healthy secondary jungle. The composition of such secondary jungle (*damun*) is, of course, very different from that of the original rain-forest. A study of the different types of plant association which result from Iban methods of *padi* cultivation would provide many fascinating problems for the plant ecologist. All that need concern us here however, is the important fact that secondary jungle which springs up after the taking of one crop from *kampong* land, is vigorous and healthy, containing very few noxious weeds.

Erosion

134 295. Although there is very little trustworthy evidence, such as does exist suggests that when only one crop is taken from virgin land, there is very little erosion. When virgin land is being farmed, the surface is only seriously exposed for one or two months after firing, and even during this period there is a protective layer of humus, ash, and partially burnt logs and boughs. As soon as the harvest is over a cover of young plants begins to establish itself. The only thorough study of erosion under conditions of shifting cultivation, of which I am aware, was that carried out by the Forestry Service of the Indies, at an experimental station

as follows: "Botanically very complex, comprising 2,000 or more species. Climbing palms (rattans) and numerous species of large vines (lianas) occur; bamboos scarce, though climbing bamboos occur here and there. Many tree species carry a large epiphytic flora on their trunks and branches, e.g. ferns, mosses, orchids. The forest floor, owing to rapid oxidation, does not carry a thick layer of leaves and humus."

[1] For this note I am indebted to B. E. Smythies, Esq.

[1] B. E. Smythies, MSS., 30th August, 1949.

1: Freeman E-5 (1949-1951)1955 OC6 Iban OC6

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place. In 1947, the area was cleared a second time, and part of it fired; the vegetation was thus of the type known to the Iban as: *dijap kampong langgang se taun* (e.g. *K*1-3). *Padi* cultivation did not occur however for the offenders were prosecuted. Three sample plots were established to study "natural plant succession", on (*a*) the slashed and burnt area; (*b*) the slashed and unburnt area; and (*c*) the unslashed, secondary growth dating from the farming season of 1945-46. After a period of 18 months the following conclusions were drawn: "The vegetation differences between the burnt and unburnt area are most marked, the extra burn obviously having killed a large number of stumps that would have coppiced and roots that would have sent up sucker shoots, as well as killing the large quantities of dormant seed, which are always present in the top layers of the soil. The resulting delay in obtaining a vegetative cover, as well as the impoverishment of the soil, has permitted the appearance of wind-borne colonisers such as *Imperata arundinacea*, which, once present is difficult to eradicate, and in itself prevents or delays the invasion of woody species".[1]

302. Evidence has now been adduced to show how injurious are the effects of cultivating either *krukoh kampong* (e.g. *K*1-2), or *dijap kampong* (*K*1-3, *K*1-4, etc.). More intensive cultivation, as—for example—of *pangkal kampong* (e.g. *K*1-2-3), or *dijap krukoh kampong* (e.g. *K*1-2-5, *K*1-2-6), produces even more detrimental results, for repeated burning only serves to accelerate the regression of the vegetation from the climax type of rain-forest to a post-climax savannah type of plant association.[1]

Excessive Usage of Secondary Jungle

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303. So far we have been discussing the effects of bad usage in virgin territory. All that has been said applies with even greater force to the exploitation of mature secondary jungle, or *damun*. If well established *damun* (say, 15 years old), resulting from a single year's use of *kampong* land, is felled and farmed *once only*, adequate regeneration soon takes place. But if *damun* land be cultivated for two years in succession, the injurious results—already noted for this kind of usage in virgin territory—are very considerably magnified. The same applies to the farming of *dijap damun*; and if three successive burns occur (i.e. the cultivation of *pangkal damun*) the land is permanently degraded into *tanah kusi*, and becomes worthless.

304. A striking example of what happens when *pangkal damun* is farmed was encountered at Rumah Pengulu Jenggut, in the lower Batang Baleh. In August 1949—together with Mr. B. E. Smythies—I examined a series of low spurs (e.g. about 200-300 feet, above the level of the Baleh) which had been farmed for three seasons in succession (i.e. the seasons of 1946-47, 1947-48 and 1948-49) by certain *bilek* families of Rumah Jenggut. In early 1946, the spurs had been covered with *damun*, and judging from adjacent sections, it had been average quality *damun* perhaps 12-15 years of age. (The *kampong* in this part of the Baleh —known to the Iban as Batu Bansu—was first felled in about 1906, but its subsequent usage is obscure). Pengulu Jenggut, and a number of other informants,

[1]Ref.: "The Malayan Forester," Vol. XII, No. 2, 1949, pp. 83-86.

[2]Cf.: Professor E. B. Copeland's comment on shifting cultivation in the Philippines, where it is known as the *caingin* system: ". . . . the first crop of the *caingin*, if the ceremonies are effective, is very heavy, the next not nearly so good, and a third may or may not be planted, but at best will be poor. In the absence of fire the land returns to brush and then to forest, unless cleared again before it reaches that stage. The Government's chief objection to the *caingin* practice is that, by accident or intent, fire after the clearing is abandoned very often turns the site to grass instead of forest." (E. B. Copeland, "Rice," 1924, p. 220).

1: Freeman E-5 (1949-1951)1955 OC6 Iban OC6

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had not the slightest hesitation in relating that the land had been cultivated during three consecutive seasons, and it was clear that they regarded this as a perfectly ordinary sort of happening. Several of them did mention, however, that the harvest on the third time of farming was a very poor one, for the *padi* was overwhelmed with weeds and would not grow properly.[1] That this was the case there can be little doubt, for when Mr. Smythies and I inspected the land about four months after the third successive harvest, it had become derelict (*tanah kusi*); there was scarcely a tree or shrub to be seen other than the common weed *kemunting* (Melastroma), the rest of the vegetation being composed almost entirely of the grasses, ferns and herbs that constitute the *lalang* association.[2] There seemed no chance that this land could ever again become healthy *damun*; probably it will remain permanently in the grip of *lalang* and associated weeds, like so many of the hills bordering the course of the Rejang between Kanowit and the mouth of the Baleh. In three short seasons—and for very small return—Iban prodigality had reduced moderately productive land to a useless waste.

305. Also at Rumah Jenggut—in August, 1949—we inspected a tract of *krukoh damun* which had sprung up after the farming of about 10 year old *damun* during the *padi* season of 1948-49. This *krukoh damun*—then four to five months old—consisted of a thick undergrowth, interspersed with young trees up to about 6 feet in height.[3] It presented a most marked contrast to the neighbouring *tanah kusi* (described in Para. 304), which had been cultivated for three years in succession. There can be no doubt that this *krukoh damun*, if left untouched for ten or more years, would become healthy *damun* once again. But, alas, part of it had already been slashed for cultivation during the coming season (i.e. 1949-50).

Conclusion

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306. This brings us to the heart of the matter. Under Sarawak conditions, if virgin rain-forest is felled, fired and farmed for *one season only*, and then allowed to recuperate, adequate regeneration takes place. Furthermore, if thereafter the resulting secondary jungle (*damun*) is brought into cultivation at sufficiently rare intervals (i.e. about every 12-15 years), and *never for more than one season*, the land may be utilized virtually indefinitely without serious degradation taking place. Should these conditions be observed, shifting cultivation is an economically justifiable form of land usage. However, as soon as the cycle becomes too short, and particularly when land is cultivated for two or more years in succession,

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[1]Cf.: Mr. B. E. Smythies account: ". . . . the farm behind Pengulu Jenggut's house started as *damun* in 1946 and the rapid deterioration resulting from cropping in successive years was graphically illustrated by the Pengulu himself—he described the *padi* as being about chest-high in 1947, waist-high in 1948, and knee-high in 1949. The ground is now *tanah kusi* . . . ." (Ref.: "Sarawak Gazette," 7th October, 1949, p. 252).

[2]It was freely admitted by the members of Rumah Jenggut that the land had become *tanah kusi*. Degraded land of this type is still rare in the Baleh, and it may be of interest therefore, to record the names of the various plants which have established themselves on the *tanah kusi* at Rumah Jenggut. Within a brief period 26 different species, nearly all of them noxious weeds, were collected; they fell into four main classes as follows:

Grasses: *lalang, rumput blanda, ruding mawang, brang empliau, kajuru, nyabu, paka, tempara Apai Sali.*

Ferns: *deman, selap padi, kalindang, paku kras, paku unus, remat besai, remat mit.*

Herbs: *mambang, kesing mayau, kaniyong, rubai, manyam, mambang iko lachau, beruru, jelumpang.*

Shrubs: *entimau, bansu, kemunting.*

[3]The following plants were identified in this *krukoh damun*:

empapa, empitap, gentu, purang, pempan, aras, manyam, tapang lalat, manding, sawe, serang, greting.

1: Freeman E-5 (1949-1951)1955 OC6 Iban OC6

serious degradation occurs, and often ends in complete devastation. When this happens shifting cultivation can only be characterized as wasteful and dangerous. Of the fact that the methods employed by the Iban are prodigal of natural resources and frequently produce most deleterious results there can be no doubt. Particularly to be condemned is their custom of cultivating land for two, or three years in succession, or several times within a span of five or six years. If shifting cultivation in Iban pioneer areas is to be stabilized, it is of crucial importance that every attempt should be made to eradicate these prodigal methods. The problem of the stabilization of hill *padi* cultivation in Sarawak is discussed in the next and concluding part of this report.

1: Freeman E-5 (1949-1951)1955 OC6 Iban OC6

Part VI

THE PROBLEM OF SHIFTING CULTIVATION

Introduction

243 307. The primary object of this report has been to present a factual survey of Iban agriculture. Here—in truth—the essential task of the research worker ends

But what of the serious problem to which the Iban system of shifting cultivation gives rise? What can be done to counteract the deleterious effects of Iban methods of land usage? This is a problem both complex and difficult, and it must be stressed from the outset that there are no easy or short term solutions; but the opinions of a social anthropologist may possibly be of some interest to those responsible for framing agricultural and native policies.

The Stabilization of Shifting Cultivation

308. As we have seen, the great bulk of the Iban population live by shifting cultivation, and it is also the method followed by most of the other indigenous peoples of Sarawak. It has been estimated, by the Sarawak Department of Agriculture, that 241,000 people—scattered throughout the five Divisions of Sarawak—derive their subsistence from hill/dry *padi* cultivation.[1] This figure indicates the scale of the problem with which we are faced. It has been suggested by some competent observers that the ultimate solution of Sarawak's agricultural difficulties lies in the development of the alluvial flats of the deltas and coastal regions. This may well be true, but any attempt to resettle the hill peoples on wet *padi* lands would be fraught with immense practical and political difficulties,[2] and it is obvious that it would have to be a very gradual process. This means that at least in the immediately foreseeable future, shifting cultivation will continue to be the method followed by the great majority of the hill peoples. This conclusion has also been reached by the Sarawak Department of Agriculture: "It is now accepted that it is inevitable that hill/dry *padi* cultivation will continue in some form or other for many years in Sarawak".[3] I propose, therefore, to accept this supposition, and to confine myself to a consideration of possible ways in which the stablization of shifting cultivation among the Iban can be achieved.

The Conditions under which Shifting Cultivation is Tolerable from an Agricultural Point of View

243 311 309. Let us begin by trying to define the conditions under which shifting cultivation may be said to be technically tolerable—from an agricultural point of view. From a silvicultural point of view, shifting cultivation may be said to be objectionable if it destroys timber that would otherwise be exploited by the

[1] Department of Agriculture, Sarawak, Annual Report for 1948, p. 52.

[2] Again, from the anthropological point of view, there are a number of strong objections to this proposal.

[3] Department of Agriculture, Sarawak, Annual Report for 1949, p. 19.

1: Freeman E-5 (1949-1951)1955 OC6 Iban OC6

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Forestry Department, or by private concessionaries. This danger can best be met by the setting up of forest reserves). Pelzer, in summarizing the opinions of a number of different authorities, states that shifting cultivation is not objectionable "so long as vegetation and the fertility of the soil are restored by nature" [1] This, I submit, we may reasonably accept as our criterion. What then are the minimum conditions under which this goal of adequate natural restoration is likely to be attained? Here, obviously, we must be guided by the findings and opinions of agriculturists.

310. Accepting the criterion that "a soil must be rested for such a period that its intrinsic composition approaches that of the original jungle soil", Joachim and Kandiah have suggested that "generally speaking, from 8 to 10 years should be an adequate rest interval in most districts in Ceylon".[2] For Sarawak, however, with its poorer soils, even 10 years would seem to be too short an interval. Thus, in the Annual Report of the Sarawak Department of Agriculture for 1949, it is laid down that: "a reasonable bush fallow of say not less than 12 years"[3] should be preserved between successive crops. Both Mr. R. W. R. Miller (Director of Agriculture, Sarawak), and Lt.-Col. Robertson (formerly Director of Agriculture, Burma) have expressed the opinion that a cycle of 15 years' duration is *ideal*.[4] In the light of this evidence, we may accept for Sarawak:

(*a*) a 12-year bush fallow period as the minimum standard;
(*b*) a 15-year bush fallow period as an ideal to be sought after.

The Carrying Capacity of Land under the System of Shifting Cultivation

311. If these standards are accepted, it follows that for every tract of land there will be a fairly definite *carrying capacity*. I am using this term in the same sense as W. Allen, who defines it as the maximum number of people that a given land area will maintain in perpetuity under a given system of usage, without land degradation setting in. Further, if the total population of an area is equal to or less than the land capacity for the system of agriculture practised, then a *population-land balance* exists within that area.[5]

312. What then will be the 'land carrying capacity' for (*a*) the minimum standard of a 12-year cycle? and (*b*) the ideal standard of a 15-year cycle? In answering these questions we must bear in mind that among the Iban it is the *bilek* family that is the basic economic unit. But the *bilek* family, as we have seen, is a group which does not vary greatly in size. Thus, in the three long-houses selected for special study, about 75% of families fell within the range of from three to seven members; the general mean for over 60 different long-houses was 5·75 members per *bilek* family. Investigations at Rumah Nyala indicated that the average area felled per annum per head of population is about 0·8 of an acre. This gives us an average area felled per *bilek* family per annum of about 4·6 acres.[6]

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[1] Pelzer (1945), *op. cit.*, p. 24.
[2] Joachim and Kandiah (1948), *op. cit.*
[3] Department of Agriculture, Sarawak, Annual Report for 1949, p. 19.
[4] E. R. Leach, "Social Science Research in Sarawak," 1950, p. 89.
[5] W. Allan, "Studies in African Land Usage in Northern Rhodesia," Rhodes-Livingstone Papers. No. 15, Oxford, 1949, p. 74.
[6] It is important to note that in what follows we are assuming a subsistence economy in which all requirements in *padi* are met by shifting cultivation. The average of 0·8 of an acre per head per annum assumes a yield of about 14 bushels per acre if mere subsistence is to be provided, and a yield of about 17 bushels per acre if normal minimum requirements are to be attained.

1: Freeman E-5 (1949-1951)1955 OC6 Iban OC6

313. If this figure be accepted, it is then possible to calculate the number of *bilek* families per square mile which any given usage cycle can support. For example, if the ideal cycle of 15 years is followed, this would mean that each *bilek* family requires about 69 acres of land, and if *all the land* in a particular territory were cultivable, this would permit a carrying capacity of about 9 *bilek* families per square mile. For the Iban however, we would never be justified in assuming that all of a long-house territory is available for *padi* cultivation. In many places in almost any territory, there are rocky outcrops or excessively steep slopes; again, land has to be set aside for burial grounds, habitations, vegetable gardens and fruit orchards; religious beliefs often interdict the felling of certain tracts of jungle; finally, most long-house territories now contain rubber plantations covering many acres of land. At a rough estimate, I would say that one is not justified in assuming that more than about 70%—80% of a long-house territory is available for the growing of *padi*. Clearly there will be a good deal of variation from community to community.

314. In Table 32, the carrying capacity of land for a series of different circumstances has been summarized. (The general assumption is made that *the average bilek family* requires 4·6 acres of land per annum). Five different fallow periods (15 years, 12 years, 10 years, 8 years and 6 years), all of which have a bearing on our present enquiry, have been selected; and the carrying capacity of the land—in terms of the number of *bilek* families per square mile, has been calculated for each cycle. Furthermore, the variation which occurs when only part of the land is cultivated is shown; four different proportions (90%, 80%, 70%, and 60%) have been selected. In each instance an approximate figure is given (i.e. the next lowest whole number).

Table 32: The Carrying Capacity of Land under the System of Shifting Cultivation

Duration of bush fallow period	*Carrying capacity of land in bilek families per square mile*			
	If 90% of land is cultivated	*If 80% of land is cultivated*	*If 70% of land is cultivated*	*If 60% of land is cultivated*
15-year cycle	8	7	6	5
12-year cycle	10	9	8	6
10-year cycle	12	11	9	8
8-year cycle	15	13	12	10
6-year cycle	20	18	16	13

Population-Land Balance under the System of Shifting Cultivation

315. The conclusions recorded in Table 32, permit us to form a general estimate of the population-land ratio which must be maintained if shifting cultivation is to remain a technically tolerable system. Let us begin by accepting the ideal cycle of 15 years' duration, and supposing that only 70% of the land is used for *padi* cultivation. If this standard is to be safely maintained, it means that the population-land ratio must not be allowed to rise above the rate of 6 *bilek* families per square mile. This would represent a population density of about 34 persons per square mile. On the other hand, if the minimum safe standard of a 12-year bush fallow period is accepted, and we suppose that only 70% of the land is cultivated, this means that a population-land ratio of about 8 *bilek* families per square mile must be observed. This represents a population density of about 46 persons per square mile.

1: Freeman E-5 (1949-1951)1955 OC6 Iban OC6

316. We may say then that if shifting cultivation is to be stabilized, Government policy should be directed towards achieving, as far as possible, the ideal population-land ratio of about 6 *bilek* families per square mile.[1] As a preliminary step, however, the somewhat higher 'standard' ratio of 8 *bilek* families per square mile might well be accepted.[2]

317. Further, we can say that as soon as the population-land ratio rises above the level of 9 *bilek* families per square mile (representing a population density of about 51 persons per square mile), the danger of land degradation[3] is imminent; and that when the ratio of 12 *bilek* families per square mile (representing a population density of about 69 per square mile) is exceeded, land degradation is certainly occurring.

The Achieving of a Population-Land Balance

318. This leads us to a further problem. Supposing the 'standard' population-land ratio of 8 *bilek* families per square mile, be accepted as a desirable preliminary level at which to attempt to stabilize shifting cultivation, how is this goal to be achieved? Clearly, it would first be necessary to carry out a survey of all areas in which shifting cultivation is practised, and to determine the existing population-land ratio for each long-house community. This is a tremendous task, but it would seem essential if shifting cultivation is effectively to be controlled. Such a survey would obviously have to be carried out in stages over a considerable number of years. First, a general appraisal for the whole Colony should be undertaken, and on this basis, a plan drawn up in which the worst districts were dealt with first. District surveys could then be undertaken with the aid of aerial photography.

319. In many pioneer areas like the Baleh, the population density is still well below the danger level, and the problem posed by these regions we shall examine presently. In other Iban districts however, and particularly in parts of the Second Division, the population-land ratio has probably exceeded the danger level of about 9 *bilek* families per square mile. (Furthermore, in many instances long-house territories will contain a proportion of derelict land, and due allowance would have to be made for this fact in reckoning population-land ratios). What then is to be done in cases where the population-land ratio has already exceeded the danger level? In certain parts of the Second Division (particularly in the Saribas District), some Dayak families are trying to solve the problem of land shortage and poor crops by abandoning their traditional subsistence economy, and turning for their livelihood to the cultivation of rubber as a cash crop. This tendency undoubtedly lessens the bad effects of shifting cultivation, but the extent to which cash crops offer a feasible solution depends on general economic factors, which lie beyond the scope of our present enquiry. In view of the world

[1] It should be noted that all of these population-land ratios are based on the assumption that land is never cultivated for two or more seasons in succession. When land is cultivated in this way, serious land degradation occurs at much lower densities.

[2] Very obviously in any long-term planning due allowance would have to be made for possible increases in population. (The 1947 Population Census showed a total population of Iban—for Sarawak—of 190, 326; and this represented an increase of 22, 626 over the enumeration of 1939).

[3] W. Allan has described land degradation (i.e. for Northern Rhodesia) as "a process which results in radical changes in the whole character of the land; loss of mineral foods, oxidation and disappearance of organic matter, breakdown of soil structure, degeneration of vegetation; and the setting up of a new train of land and water relationships." (W. Allan, 1949, *op. cit.*, p. 1).

1: Freeman E-5 (1949-1951)1955 OC6 Iban OC6

X 243 shortage of rice, which shows small sign of abating, it would seem essential that
● 311 Sarawak should strive as far as possible to meet her own requirements, and this situation greatly complicates the task of dealing with shifting cultivation. In areas like the Saribas District, there appears to be no alternative but large scale development of wet *padi* cultivation and extensive re-settlement of the local Dayak population.

The Problem of Shifting Cultivation in Pioneer Areas

X 243 320. Let us now return to the problem of shifting cultivation in the pioneer
311 areas—such as the Baleh—which are the primary concern of this report. Here
161 we are faced with a very different situation. In none of these areas (as far as I have been able to determine) has the density of population reached a dangerous level. Because of the lack of detailed, small-scale maps, the reckoning of population densities for many of the interior districts of Sarawak is a difficult task, and often only very approximate estimates are possible. However, as an example of conditions in the Baleh region let us take the Sungai Sut. In 1948 (according to official records kept at Fort Sylvia, Kapit), the Sut valley contained 21 long-houses with a total population of 1,570 persons. If we include all the land within about two miles of the rivers' courses to which settlement is confined, these 1,570 people occupied an area of somewhere about 100 square miles. Thus, if we assume that only 70% of this area is used for *padi* cultivation, the population-land ratio was not more than about 4 *bilek* families per square mile. For the Baleh region as a whole (i.e. the region contained within the fartherest points of Iban occupation) the population-land ratio is even lower, and probably lies somewhere between 2 and 3 *bilek* families per square mile.

X 243 321. As these figures indicate, the population density in the Baleh region is
311 well below the critical level of about 9 *bilek* families per square mile. This does not mean however that serious land degradation has not been caused by the Baleh Iban. Iban methods of land usage, as we have seen, produce most deleterious results even in areas where there are adequate reserves of virgin jungle. Indeed, their whole system of land usage is a response to circumstances in which reserves of virgin jungle have been virtually limitless. When they occupied the Rejang basin, the Iban were invading the territories of alien tribes, and their understandable impulse was to exploit their gains to the full. There can be no doubt that in the past, the Iban viewed the forests that surrounded them as an expendable resource. Their method has been to extract all the wealth they could from the *kampong* nearest at hand, and then move on to fresh jungle. As already remarked, they have been less shifting cultivators than '*mangeurs de bois*'.

322. These methods—let me reiterate—have been brought about not by any scarcity of forest land, but by conditions of super-abundance. Furthermore, it is important to recognize, that from the point of view of individual *bilek* families the system of intensive usage had many marked advantages. Hundreds of families in the Baleh and similar areas, have accumulated considerable wealth (in terms of Iban values) from farming virgin jungle. Again, during the course of their advance in the Third Division, the Iban were very largely a power unto themselves. When it suited them they gave recognition to the White Rajah, but again and again, from the First Katibas Expedition in 1869 to the Second Gat Expedition of 1919, various groups resorted to open rebellion, and repeatedly defied attempts to restrain their movements. They still remain a power to be respected. It is extremely important, I would suggest, that all of these background factors

1: Freeman E-5 (1949-1951)1955 OC6 Iban OC6

should be taken into consideration, if the problem of Iban shifting cultivation is to be properly understood.

The Stabilization of Shifting Cultivation in Pioneer Areas: the Need to Change the Entire Basis of Iban Land Usage

323. How then is the stabilization of shifting cultivation to be achieved in pioneer areas like the Baleh? So far the only positive step to have been taken has been the establishment by Government of forest reserves, and the setting up of fixed points (*paks*) beyond which shifting cultivation is not permitted. This delimitation of the areas available to Iban cultivators is a very necessary initial step, but it is essential to realize that it is in no sense a solution of the problem. Indeed, if other remedial measures are not taken, the action of confining the Iban will—in due course—only aggravate the spoilation it is designed to curtail. As we have seen, Iban methods of land usage are adapted to a system of constant expansion. When the possibility of further expansion is ruled out, the deleterious effects of Iban prodigality become an even greater threat. Therefore, if the policy of containment is to succeed, it is imperative that most strenuous efforts should be made to alter the entire basis of Iban land usage.

324. Very obviously, the most important task of all is the abolition of the Iban practice of cultivating land for two or more seasons in succession, or several times within a brief span of years. Here we are concerned with three main types of usage:

(*a*) *the pangkal usage:* in which land is cleared, fired and cultivated during three successive seasons (e.g. K1-2-3 or D1-2-3);

(*b*) *the krukoh usage:* in which land is cleared, fired and cultivated for two seasons in succession (e.g. K1-2 or D1-2);

(*c*) *the dijap usage:* in which land is cleared, fired and cultivated, twice within a period of from three to five years (e.g. K1-3, K1-4, K1-5, or D1-3, D1-4, D1-5).

N.B. There is also the special kind of *dijap* usage known as *dijap krukoh kampong* (e.g. K1-2-4, K1-2-5, or K1-2-6).

325. All of these methods are undoubtedly detrimental, and their eradication is clearly an essential first stage in any plan for the stabilization of shifting cultivation. If the *pangkal*, *krukoh* and *dijap* methods of land usage could be eradicated much would have been done to ameliorate the whole situation, and a major advance would have been achieved. I would recommend therefore, that the Government of Sarawak should launch a campaign against these wasteful practices. It must not be thought that success will be easily achieved. The types of usage we are discussing are now deeply rooted in Iban custom, and it is certain that any plan to forbid them will meet with strong resistence. But if the situation is to be brought under control, this resistence must be faced and overcome. How is this to be done?

A Propaganda Campaign against Wasteful Methods of Land Usage

326. As a first step, I would suggest, an intensive propaganda campaign should be instituted. It must be brought home to the Iban that fresh tracts of virgin jungle are *no longer available*,[1] and that they must resign themselves to permanent

[1]*This is a crucially important point.* For more than seventy years, the Iban have had experience of Government measures designed to prevent them from occupying fresh areas of virgin jungle, and so far they have always succeeded in breaking through to get their own way. Most of the Baleh Iban are still working on the supposition that there are still adequate

5: Roth E-4 (no date) 1892 OC6 Iban OC6

marked tendency among the tribes to demand a heavier rent—in fact several dollars a year. The tenure, too, has been modified within late years in view of the increasing demand for accommodation, and it is now generally understood that when the proprietor chooses to leave the district and remove into a distant country he forfeits, by so doing, all title to the ground and can no longer exact rent.

Agriculture with the Sea Dyaks is in a very backward condition, but they contrast very favourably with the Malay population in the vicinity. Neither use the plough nor buffalo, but the former cultivate on a more extensive scale and with a more provident idea. They grow, both individually and collectively, far more than they require for their own consumption, and with the residue they purchase necessaries, such as salt, steel, iron, and luxuries, such as personal ornaments, for their families. If the harvest has been really plentiful they are even able to afford to purchase gongs and toddy, and perhaps a jar or two.

As a rule they prefer to cultivate hilly soil, but some few have learnt to utilize the wet land. Their farming operations are regulated by the position in the heavens of the Seven Stars of the Pleiades. They commence business towards the end of the dry season, July and August, so that they have the wet monsoon to bring the paddy to maturity, and the beginning of the following fine weather, April and May, to ripen the grain.

The old jungle is called *kampong*, and the new is called *temuda*. The Dyaks prefer infinitely to farm the former whenever it is to be obtained within reasonable distance of the village, and when it is getting scarce in their immediate neighbourhood they shift their residence nearer to it. In parts of the country more populous than others, it frequently happens that the Dyaks have not in their territory any old jungle; such situations are not so laborious to prepare, but being destitute of the rich layer of vegetable mould and the fertilizing properties of burnt wood, are not nearly so productive. After having felled the old jungle and farmed on it once, they leave it for seven years to grow up again and are then ready to use it a second time. The first year's growth is called *kruah*.

When it is intended to open out new country, the first thing to be done is for every family to select an eligible piece of forest land and to mark out the quantity they wish to cultivate. The next step is to *beburong*, that is to say to consult the omen birds of the tribe to learn whether or no they approve of this choice. For this purpose they erect a hut first in one quarter then in another of the land in question, and wait upon the birds for

15: Freeman E-5 (1949-1951) 1955 OC6 Iban OC6

of the *bilek-families* of Rumah Nyala fell into this category. The situation can be summed up by saying that the framework of Iban social organization at the level of the local community is *bilateral kinship*, and that a *bilek-family* is free to join any long-house containing cognatic kin of either husband or wife. This, it should be noted, is a different principle from that which operates within the *bilek-family* itself. A child is always a member of either its father's or its mother's natal *bilek*, depending on whether its parents practise virilocal or uxorilocal marriage; but it can never be a member of both their *bileks*, always one or the other. This means that *bilek* membership, inheritance, etc. is always through either a female or a male link, and it is this system that we have termed *ambilateral filiation*. Further, a child only leaves the *bilek* in which it has grown up, to be adopted, or to marry into some other family; we may say, therefore, that within the *bilek-family*, filiation is ambilateral and permanent—the only exceptions being adoption and marriage. The principles governing long-house organization are quite different however, and cannot be properly described as ambilateral. Instead they are based on bilateral kinship, and a recognition that cognatic ties, whether traced through mother or father, are of equal value. Either, or both, may determine the local community in which a *bilek-family* resides, and *bilek-families* are perfectly free to move from one long-house to another within any of the kindreds to which they belong.

133. Occasionally, because of quarrelling, bad omens, or persistently poor harvests, a long-house will break up, and its constituent *bilek-families* disperse to several different destinations. During the year 1949, two such cases occurred in the Sungai Sut, the houses concerned being Rumah Kubu (of 11 *bileks*), and Rumah Angkau (of 15 *bileks*). Listed below are the destinations to which their various *bilek-families* dispersed.

A. *Rumah Kubu, of Sungai Sut.*

Number of bileks.	*Destination.*
4	Rumah Sipang, Ulu Merirai,
2	Rumah Anye, Sungai Mujong,
2	Rumah Nyala, Sungai Sut,
1	Rumah Sumtong, Sungai Merirai,
1	Rumah Sebau, Nanga Baleh,
1	Rumah Ubong, Sungai Poi.

B. *Rumah Angkau, of Sungai Bena (a tributary of S. Sut).*

Number of bileks.	*Destination.*
6	Sungai Ensulai, below Kapit,
1	Sungai Merirai,
1	Sungai Ménuan, below Kapit,
1	Rumah Unyong, Sungai Bena,
6	*remained at* Rumah Angkau, Sungai Bena.

In the case of Rumah Angkau, it will be noted that nine *bileks* (out of a total of 15) dispersed to four different destinations, leaving six families at the original site. Rumah Kubu presents an even more striking example however, for here the site (which had been occupied sipce about 1932), was entirely abandoned, and the 11 *bilek-families* dispersed to six widely scattered destinations. Sungai Poi is distant more than 100 river miles, from Rumah Sipang, a pioneer community in the head-waters of the Merirai. We are here confronted then, with the complete disintegration of a long-house community, its constituent *bilek-families* terminating their association, and separating to merge with other already established communities. Moreover, each *bilek-family* joined a community in which there were already kinsfolk of one of its members. This is further evidence of the remarkably wide area over which kindred ties ramify. But most importantly, these examples of community disintegration demonstrate with clarity, the fundamental nature of the Iban long-house community, showing that it is a free and conditional association of corporate family groups. In other words, being part of a long-house does not deprive a *bilek-family* of its essential autonomy. In Iban social organisation, there is no principle of more vital consequence.

The Long-House Community as Corporate Group.

134. From the analysis so far, we can say that a long-house community is a serial aggregation of *bilek-families*, confederated by cognatic kinship. Moreover, it is an open, and not a closed group, for *bilek-families* are entitled to leave and join at will (subject, of course, to Government regulations). To what extent then is the long-house community as a whole, a corporate group? This is a difficult question to answer in general terms, but it may be observed, from the outset, that the degree of corporateness is low, and that inasmuch as it does exist it stems from ritual concepts, rather than from collective ownership of land or property. Let us first deal with these two last categories.

135. Until fairly recent times, land in the Kapit District, has been a commodity in virtually unrestricted supply. When an Iban community had felled all the virgin jungle of the area in which it was living, it simply moved on to another territory, where there was fresh forest land to be exploited. Under these conditions land was not a highly valued commodity, for on all sides there lay vast tracts of unpeopled, primeval jungle, awaiting the onslaught of axe and fire. But with

the advent of Government control, the situation is changing, for the Iban are now hemmed in by boundaries beyond which slash and burn cultivation is not permitted. In the Baleh area however, a plentiful supply of land still exists, and there is, as yet, no real pressure upon the recently erected boundaries. The re-settlement of the Baleh in 1922 was under general Governmental surveillance, and each long-house community was allotted a roughly defined territory bordering the banks of the main river, or one of its tributaries. But the re-occupation was en masse, by scores of different long-house communities, and there was no system of survey, or legal registration.

136. Territories seem to have range from about five to fifteen square miles, according to the size of the community, and the most favourable sites, at the heads of the rivers, were granted to those who had remained faithful to the Brooke regime during the years of disaffection and rebellion. However, the allotment of a territory did not mean that the members of the community concerned held this land in collective, or communal ownership. What it did mean was that all *bilek-families* had *equal access* to the land. Among the Iban, ownership of land is established by the felling of primary jungle. Thereafter, the land belongs to the *bilek-family* responsible for this first felling, and it has full discretionary rights over the usufruct of the secondary jungle which springs up within a few months of the harvest. These rights are not in perpetuity however. Should a *bilek-family* migrate to another district and take up permanent residence there, its former land rights lapse; they may be assumed by remaining kindred, or if the entire community migrates, simply abandoned.

137. A pioneer community begins then, as a group having common and equal rights of access to a specified tract of virgin forest; year by year its component *bilek-families* establish ownership over different sections of this territory, until finally all of the land is privately owned. At the same time fruit-trees are being planted, and, in some areas, rubber plantations established; these too are privately owned by the *bilek-families* that plant and rear them. A long-house community consists therefore, of a series of *bilek-families* all of which hold in private ownership areas of secondary jungle, fruit trees, and sometimes, rubber plantations, within the confines of a compact territory. This much the *bilek-families* of a long-house do have in common, but farming land is never held in collective ownership.

138. Nor, among the Iban, is there anything resembling a village green (such as the *marae* of Polynesia), which belongs to the community as a whole. Privately owned land approaches to within a few feet of the long-house structure. The only exception is the burial ground, or *pendam*. This invariably consists of a spur rising from the river, on the banks of which the long-house is situated, for corpses are always carried by canoe. The jungle on the chosen spur is left in its primeval state, and never entered except for burials and on ritual occasions. Here, all *bilek-families* inter their dead, and throughout the undergrowth (for graves are left untended) are scattered jars, gongs, and many other kinds of burial property, which constitute the last inheritance of the dead. A burial ground falls into the same category as virgin jungle, over it there are no rights of ownership, but to it all *bilek-families* have full and equal rights of access. Occasionally it happens that two neighbouring long-houses share the same *pendam*, but in general, each community has its own site, where the bodies of those who once lived together lie buried.

139. We have seen that among the Iban the *bilek-family* is the basic land-owning group. This also applies to all other forms of property. Thus the long-house structure itself is made up of a series of separate apartments, each of which is privately owned. The only exception is the *tangga*—a huge log of hardwood, adzed to shape and deeply notched at regular intervals to form a ladder by way of which entry may be gained to the elevated *tanju* of the long-house. Often, they are about 20 feet in length, and weigh hundreds of pounds; sometimes, several *tangga*, connected by small stagings, are required. In the Baleh, *tangga* always lead on to the open *tanju*—either in the front of the house, or at the ends. They are spaced out at even intervals, and in most long-houses there is one entrance to about every seven *bileks*. In Rumah Nyala, for example, with 22 actual apartments, there were three entrances (c.f. Figure 2), while Rumah Tungku, with 45 apartments, had eight, and Rumah Sibat, with 29 apartments, four entrances.

140. The making of a *tangga*, transporting it back to the long-house, and then erecting it, complete with railings, is no light task. Usually it is undertaken by the men of the small group of *bilek-families*, whose regular way of entry it will become. But if it be the main *tangga* of the long-house (i.e. the first entrance to be constructed by the founding families), all the men of the long-house join in the work. This is mainly for ritual reasons. The main *tangga* is looked upon as a kind of portal connecting the long-house with the outside world; by this route both good and evil may come to the inhabitants, but by proper ritual performances, it is possible, say the Iban, to consecrate the *tangga* so that it will become a ladder by way of which riches and good fortune are carried up into their house. Understandably, all *bilek-families* are eager to join in the ceremony, and enjoy the benefits it brings. In the full scale rites, various of the gods (*petara*) are summoned, in a chanted invocation (*timang*), to visit the long-house, and on their arrival, offerings are made and sacrifices performed. In the *timang* the attributes and the actions of the gods are described. With them they have brought a marvellous *tangga*, which has the power to attract to the long-house all that men desire. It cannot be seen, of course, for it is in the form of soul-stuff, but as the gods erect it, the Iban put their newly hewn *tangga* in place, and the substances of the two become magically fused. Further offerings and sacrifices are made, prayers of consecration uttered, and the ceremony is concluded. Such a *gawai tangga* is usually organized by the *tuai burong* (augur), but the materials used in the offerings (e.g. *tuak*, eggs, rice, etc.) are supplied in equal proportions by all the *bilek-families* of the long-house. It is thus a corporate rite, involving the whole community, and the *tangga* is the common property of all those who participated.

311 The pattern of land use varies considerably in each community, depending upon the amount and type of land available. At Rumah Nyala, Sungai Aup, the lower-lying land on the eastern bank of the Aup has been developed into sawah. The higher ground on the western side of the river has been planted with rubber and fruit trees. Closer to the longhouse, coconuts, areca-nuts, and other fruit trees flourish. At Rumah Gaong, Sungai Sengan, farm-lands are not so concentrated and are located at
654 distances up to one-hour's walk from the house. Members of the community have been recipients of Government schemes for pepper and cocoa, and most families have 300 or more pepper plants on hilly, well-drained clay soils. Tuai Rumah Gaong has planted four-dozen cocoa bushes, some of which have borne and the fruit processed for drinking. He also has participated in the Rubber Planting Scheme, obtaining budded rubber from the Agriculture Department to replace his old, low-yielding variety.

423 Land was equally divided among the members of a community, and rights were established through eminent domain. Land rights were guarded by the gerontocratic rule of the elders. When disputes arose, they were adjudicated,

> [622] "by boundary markers such as trees and stumps and according to who came first. Therefore, the tuai rumah also was the tuai menoa (area elder), for he who came first certainly knew the comings and the clearings. Formerly, people depended on genealogies [178] and kin-groups, but now, on lawyers."

Land may be divided into two sub-categories: land held by individuals and their family units, and land the rights to which are shared